

# **OPERATING EXPERIENCE WEEKLY SUMMARY**

**Office of Nuclear and Facility Safety**

**June 5 - June 11, 1998**

**Summary 98-23**

# Operating Experience Weekly Summary 98-23

*June 5 through June 11, 1998*

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## EVENTS

### 1. ACCESS CONTROL PROBLEMS AT BROOKHAVEN NATIONAL LABORATORY

On June 6, 1998, at the Brookhaven National Laboratory Alternating Gradient Synchrotron, the operations coordinator placed the synchrotron ring in the beam-enabled state while a technician was still inside the ring. The gate watch mistakenly believed that the technician had signed out when he told the operations coordinator that all personnel were out of the ring, and the operations coordinator decided to forego a three-man sweep of the accelerator. The three-man sweep is required before placing the ring in the beam-enabled state. The synchrotron is a proton accelerator, and the ring is a high-radiation area when the proton beam is present. Failure to provide adequate access control to high-radiation areas increases the risk of personnel exposure to ionizing radiation. (ORPS Report CH-BH-BNL-AGS-1998-0003)

Investigators determined that 52 technicians signed in with the gate watch to perform work inside the accelerator ring and signed out before the lunch break. The operations coordinator decided to maintain access control to the ring by placing it in the beam-enabled state while all personnel were having lunch. Before allowing the beam-enabled state to be entered, the operations coordinator conferred with the gate watch who stated that all technicians had signed out of the ring. However, he did not know that one technician remained inside the ring. When the operations coordinator placed the ring in the beam-enabled state, the technician inside the ring observed that the lights had dimmed. He recognized this as the visual signal that the ring was in the beam-enabled state. The technician used a telephone located inside the ring to alert personnel outside the ring, and they opened the south gate so he could exit. Investigators later determined that the gate watch did not realize that the name he saw on the gate log indicating the technician had exited the ring was written in error by another technician and lined out. Planned corrective actions include retraining the accelerator staff on access procedures and changing the gate log to require two signatures (the technician leaving the ring and the gate watch) for exit.

Accelerator operating procedures require a three-man sweep of the ring before the beam-enabled state can be entered if more than 25 people sign in. The operations coordinator's rationale for placing the ring in the beam-enabled state without performing a three-man sweep was that there was no planned beam injection, and beam injection was disabled with a radiation safety lockout/tagout. The operations coordinator was not the owner of the lockout/tagout.

NFS has reported inadequate access control in previous Weekly Summaries. Following are some examples.

- Weekly Summary 96-48 reported that a security technician at the Lawrence Livermore National Laboratory was hit in the eyes by the reflected beam from an operating class IIIB laser when he entered a room. Investigators determined that a lead experimenter had left the laser on overnight without meeting Laboratory safety requirements. Investigators found the laser power cutoff was not interlocked to the door, there was no alarm, and warning signs were not posted outside the door in violation of access control requirements for the room. (ORPS Report SAN-LLNL-LLNL-1996-0060)
- Weekly Summary 95-45 reported that a facility representative at the Hanford Analytical Laboratory discovered a hot cell that was posted as a high-radiation area and unlocked. The high-radiation area was not controlled or locked, and unexpected exposure of personnel could have resulted. Corrective actions

included revising procedures to improve access control and posting high-radiation areas. (ORPS Report RL--WHC-ANALLAB-1995-0031)

- Weekly Summary 94-22 reported that two journeyman electricians exited the Pulse Intense X-Ray Building at Los Alamos National Laboratory without proper authorization while pulse x-ray operations were being conducted. The electricians were instructed by the firing site leader to remain in the building while pulse x-ray operations were being conducted and stay there until he returned for them following an x-ray shot. Corrective actions included revising standard operating procedures to require positive control of personnel at the site and elsewhere at the facility and excluding non-facility personnel from inside the safety gate before machine operations. (ORPS Report ALO-LA-LANL-FIRNGHELAB-1994-0004)

This event underscores the need for effective access control to areas where hazardous conditions exist and demonstrates the importance of a strong radiological control program for all radiation areas. The operations coordinator failed to follow established access control procedures when he decided to forego the three-man sweep based, in part, on his reliance on a lockout/tagout that he had no control over. Therefore, defense-in-depth was lost. The following references provide guidance on radiation control and lockout/tagout.

- DOE/EH-256T, *Radiological Control Manual*, chapter 3, part 3, specifies entry and exit requirements for radiation areas. Article 334 requires physical controls to prevent inadvertent or unauthorized access to high- and very-high-radiation areas. Appendix 3B sets forth physical access controls for high- and very high- radiation areas.
- DOE-STD-1030-96, *Guide to Good Practices for Lockouts and Tagouts*, provides guidance on lockout/tagout program implementation and management at DOE facilities. The guide is designed to enhance the guidelines set forth in DOE Order 5480.19, *Conduct of Operations Requirements for DOE Facilities*.
- DOE/EH-0540, Safety Notice No. 96-05, "Lockout/Tagout Programs," summarizes lockout/tagout events at DOE facilities, provides lessons learned and recommended practices, and identifies lockout/tagout program requirements.
- DOE O 5480.25, *Safety of Accelerator Facilities*, establishes safety program requirements specific to accelerator facilities that provide a level of safety comparable to that required of nuclear facilities and ensures that accelerator facilities give full consideration to potential safety and health impacts in their design, operation, modification, maintenance, and compliance with applicable federal and state statutes.
- The *Hazard and Barrier Analysis Guide*, developed by OEAF, includes a hazard-barrier matrix showing that lockout/tagout is the most effective barrier against injury. When implemented properly, lockout/tagout provides a high probability (greater than 99 percent) of success for risk reduction.

Safety Notice 96-05 can be obtained by contacting the ES&H Information Center, (800) 473-4375, or by writing to U.S. Department of Energy, ES&H Information Center, EH-72, 19901 Germantown Road, Germantown, MD 20874. Safety Notices are also available on the OEAF Home Page at [http://tis.eh.doe.gov:80/web/oeaf/lessons\\_learned/ons/ons.html](http://tis.eh.doe.gov:80/web/oeaf/lessons_learned/ons/ons.html). A copy of the *Hazard and Barrier Analysis Guide* is available by contacting the ES&H Information Center, (800) 473-4375, or by writing to U.S. Department of Energy, ES&H Information Center, EH-72,

19901 Germantown Road, Germantown, MD 20874. A copy can also be found at URL <http://tis.eh.doe.gov:80/web/oeaf/tools/hazbar.pdf>.

**KEYWORDS:** access control, lockout and tagout, radiation protection

**FUNCTIONAL AREA:** Radiation Protection

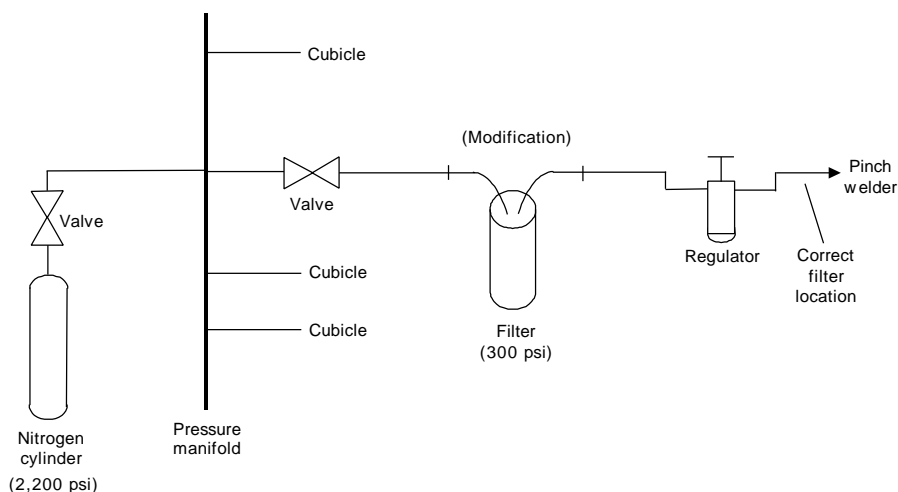
## FINAL REPORT

This section of the OE Weekly Summary discusses events filed as final reports in the ORPS. These events contain new or additional lessons learned that may be of interest to personnel within the DOE complex.

### 1. COMPRESSED GAS SYSTEM FILTER FAILURE AT SAVANNAH RIVER

On November 6, 1997, at the Savannah River Technology Center Laboratory Technical Area, an in-line filter on a nitrogen system ruptured. Investigators determined that the filter failed because facility personnel used an incorrect design drawing when modifying the nitrogen test system and installed a low-pressure-rated (300 psi) filter on the high pressure (2,200 psi) side of a regulator. There were no injuries and only minimal equipment damage. This event is significant because defective or inadequate designs in high pressure systems can result in injuries or catastrophic damage to equipment. (ORPS Report SR--WSRC-LTA-1997-0032)

Investigators reported that a nitrogen manifold routes gas to several experiment cubicles in the facility. Nitrogen cylinders supply the manifold at pressures up to 2,200 psi. A regulator located in each cubicle reduces the nitrogen pressure to the desired levels for experiments. Figure 1-1 shows a simple schematic of the nitrogen system. The specialist had replaced the empty cylinders and opened the manifold isolation valve to pressurize the system when he heard the loud noise. He isolated the system supply; examined the nitrogen test system and experiment cubicles; and observed that part of the filter housing had blown off, the metal mesh filter had fragmented, and piping connected to the housing had twisted. Facility personnel made the appropriate notifications, secured access to the nitrogen test system area, and inspected all high-pressure test equipment for similar conditions before resuming test work. Investigators determined that when the specialist changed the nitrogen cylinders, pressures exceeded the filter rating, and the filter failed.



### Figure 1-1. Simple Schematic of Nitrogen Test System

Facility personnel reported that personnel error (procedures not used or used incorrectly) was the root cause of this event because facility procedures and documents for drawings, hazardous energy control, and modification of systems were not followed. They reported the direct cause of this event as a design problem (inadequate or defective design) because the development drawing showed the installation of a filter rated for low pressure (300 psi) applications on the high-pressure (2,200 psi) side of the regulator. They reported the contributing cause as personnel error (inattention to detail) because no one reviewed or verified the development drawing, and no one performed a final acceptance inspection after the filter was installed and before the system was returned to service. The facility manager implemented several corrective actions, including: revising procedures to include additional design reviews; identifying system ownership; resolving lockout/tagout issues and final acceptance inspection issues; and issuing lessons learned.

NFS has reported events concerning incorrectly designed modifications in systems that handle compressed gases in several Weekly Summaries. Following are some examples.

- Weekly Summary 92-24 reported that a differential pressure gauge ruptured at the Argonne National Laboratory-West Hot Fuel Examination Facility when technicians opened an argon supply valve to a flow tester. Investigators determined that the causes for the gauge rupture event included a gauge rating below the maximum potential system pressure and a manifold design that permitted excess pressure to be applied.
- Weekly Summary 92-19 reported that facility personnel at the Hanford Site incorrectly installed a gas manifold pressure regulator in an acetylene gas distribution system. Facility personnel reported that (1) reviewers failed to identify a design deficiency during the design review of the distribution system, (2) the pressure regulator was improperly specified in the design control package, and (3) the pressure regulator was not suitable for handling acetylene. (ORPS Report RL-PNNL-PNNLNUCL-1992-0045 (formerly RL-PNL-325-1992-0026))

These events underscore the importance of developing design change packages and performing detailed technical reviews of design change packages. In the Savannah River event, no one was in the cubicle when the filter failed. Facility managers, design engineers, and other personnel involved in the development of facility modifications should ensure that modification packages and technical reviews are performed by qualified personnel to ensure design discrepancies are identified. Facility personnel should also ensure that components in systems with gases or liquids under pressure are rated for maximum system pressure or protected by relief valves or other devices. Guidance on performing design reviews and designing systems with gases or liquids under pressure can be found in the following references.

- DOE O 6430.1A *General Design Criteria*, section 0140, "Quality Assurance," states that control mechanisms shall be established to ensure that changes to the design are controlled in a manner commensurate with the original design and that the design is independently verified to be adequate. Section 0140 also specifies that provisions shall be made for reviewing and checking design calculations, drawings, and construction specifications by qualified personnel other than those responsible for the original design. Deviations from specified standards shall be identified and procedures established to ensure their control. To the extent practicable, and particularly in the case of innovative design, the design should be independently

reviewed by competent consultants in construction or manufacturing techniques to confirm the practicability of construction or manufacture.

- DOE O 5480.19, *Conduct of Operations Requirements for DOE Facilities*, chapter VIII, "Control of Equipment and System Status," states that DOE facilities are required to establish administrative control programs to handle configuration changes resulting from maintenance, modifications, and testing activities.
- DOE-STD-1073-93, -Pt.1 and -Pt.2, *Guide for Operational Configuration Management Program, Including the Adjunct Programs of Design Reconstitution and Material Condition and Aging Management*, addresses modification technical reviews as part of the change control element. Section 1.3.4.2 of the standard recommends that the design authority review and approve changes before implementation. The section states that these reviews should be used to evaluate safety, environmental, and mission impacts. The standard also discusses the control of modifications that can lead to temporary or permanent changes in design requirements, facility configuration, or facility documentation. The standard discusses identifying changes, conducting technical and management reviews, and implementing and documenting changes.

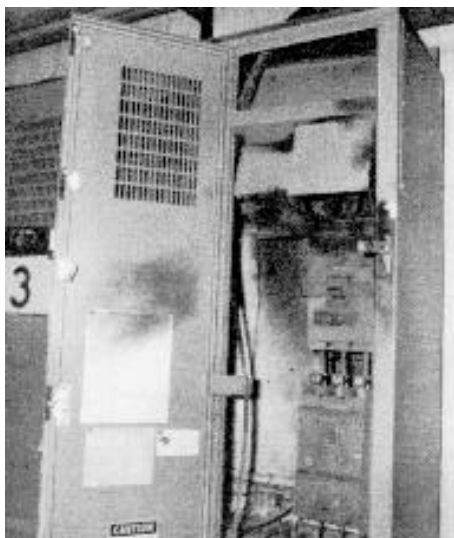
**KEYWORDS:** compressed gas, drawings, design deficiency, filter

**FUNCTIONAL AREAS:** Engineering Support, Design, Modifications

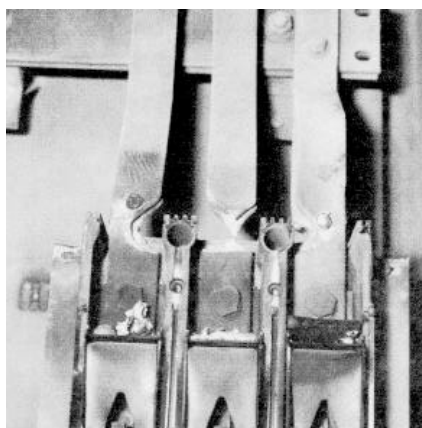
## ***OEAF FOLLOW-UP ACTIVITY***

### **1. FLASH BURNS FROM ELECTRICAL ARC BLAST AT FERMI NATIONAL ACCELERATOR LABORATORY**

Weekly Summary 97-44 reported that two subcontractor electrical workers at Fermi National Accelerator Laboratory received flash burns from an electrical arc blast when a metal cover contacted an energized bus bar as they attempted to connect a neutral cable for a temporary feed from a 480-volt motor control center panel. Emergency response personnel responded to the scene and sent one of the subcontractors to a local hospital by ambulance. He was treated for burns to his hands and immediately released. The second subcontractor was transported by helicopter directly to a hospital with a burn unit where he was treated for burns to his face and hands. DOE assembled a Type B Accident Investigation Team to review this event. The Board completed the accident investigation report in November 1997. They identified the following root causes for the event: (1) the electricians did not understand that there were energized components behind the bus bar cover; and (2) the Laboratory failed to ensure an integrated safety management system was implemented for electrical work. The report contains valuable lessons for other DOE facilities and is summarized in this article. Figure 1-1 shows the damaged bus bar cover. Figure 1-2 shows the damaged bus bar. (*Type B Accident Investigation Board Report on the October 22, 1997, Electrical Arc Blast at Building F-Zero Fermi National Accelerator Laboratory Batavia, Illinois*, November 1997; and ORPS Report CH-BA-FNAL-FERMILAB-1997-0004)



**Figure 1-1. Damaged Bus Bar Cover<sup>1</sup>**



**Figure 1-2. Damaged Bus Bar<sup>1</sup>**

The Accident Investigation Board determined that Laboratory controls, documentation, and communication for electrical work are inadequate to satisfy the following five core functions of DOE's integrated safety management system: (1) define the scope of work; (2) identify and analyze the work hazards; (3) develop and implement hazard controls; (4) perform work within controls; and (5) provide feedback on the adequacy of controls and continuous improvement in defining and planning work. Following is a summary of some of the conclusions the Board developed.

- No one developed a documented work package to translate the job mission into work and set safety expectations.
- No one documented a hazard assessment for the job.

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<sup>1</sup>Type B Accident Investigation Board Report on the October 22, 1997, Electrical Arc Blast at Building F-Zero Fermi National Accelerator Laboratory Batavia, Illinois, November 1997. This report is available on the Internet at URL [http://nattie.eh.doe.gov:80/web/eh2/acc\\_inv.html](http://nattie.eh.doe.gov:80/web/eh2/acc_inv.html).

- No one developed or implemented work controls for the job and no one established adequate controls for the room where the work was performed.
- No one communicated lessons learned from similar electrical accidents to employees.

The Accident Investigation Board determined that “the absence of clearly defined line management responsibilities and accountability for safety caused failures in translating the job mission into safe work practices, setting safety expectations, and allocating trained and experienced personnel.” Because the electricians were looking for a neutral in a system that had none, the Board determined that they were not familiar with the equipment they were working on. The Board concluded that no evidence existed to demonstrate that contractor personnel receive the appropriate Laboratory training.

This event underscores the importance of using effective work control practices and detailed pre-job planning for electrical activities. In this event, lack of a formal work control program routinely allowed electrical work to proceed without the proper reviews, approvals, and documentation. The responsibility for ensuring adequate planning and control of work activities resides with line management. Managers should ensure that work control processes are followed and facility practices are enforced. Safety and health hazard analysis must be included in the work control process to help prevent worker injury. The hazard analysis process should include provisions for drawing reviews, job-specific walk-downs, and personnel protective equipment. Pre-job briefings, facility procedures, and training programs should emphasize the dangers associated with electrical activities.

This event also demonstrates the importance of multiple engineered barriers to prevent hazardous events such as electrical shocks or discharges. Although human performance (supported by procedures, policies, memoranda, or standing orders) is a standard barrier to preventing electrical shocks and arcs, the probability of prevention can be increased by adding physical barriers. Workers must also be trained in and made aware of electrical hazards.

A good lockout/tagout program is an important element of an effective conduct of operations program. Lockout/tagout programs in DOE serve two functions. The first function, defined in both 29 CFR 1910, *Occupational Safety and Health Standards*, and DOE O 5480.19, *Conduct of Operations Requirements for DOE Facilities*, is to protect personnel from injury and protect equipment from damage. The second function is to provide overall control of equipment and system status. Lockout/tagouts are typically applied during maintenance activities; however, there are many cases when lockout/tagouts are needed for personnel safety. The standard states that an effective lockout/tagout program requires three elements. These elements are as follows: (1) all affected personnel must understand the program; (2) the program must be applied uniformly in every job; and (3) the program must be respected by every worker and supervisor.

Managers and supervisors in charge of job performance should ensure that hazards are identified and corrected. DOE facility managers should ensure that personnel understand the basics of work control practices and safety and health hazard analyses. Personnel in charge of system design changes should ensure that facility documentation, including drawings, is updated and accurate. Many references apply to this event. Following are some examples that facility managers should review to ensure they are incorporated in current facility safety programs.

- DOE O 4330.4B, *Maintenance Management Program*, chapter 6, provides guidance for preparing and using procedures and other work-related documents that contain appropriate work directions. Section 6.2 states that experience has

shown that deficient procedures, and failure to follow procedures, are major contributors to many significant and undesirable events.

- 29 CFR 1910.332, *Training*, requires employers to perform and document assessments of workplace hazards. It also provides requirements for qualification of electrical personnel.
- 29 CFR 1910.333, *Selection and Use of Work Practices*, states: "when any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts shall be locked out or tagged out." It also states: "safety-related work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits which are or may be energized." It also requires a qualified person to test the equipment to verify that all circuit elements and equipment parts are de-energized.
- DOE-STD-1030-96, *Guide to Good Practices for Lockouts and Tagouts*, section 1, "Introduction," states that the primary purpose of lockout/tagout programs is to protect employees from exposure to potential hazardous energy sources. This standard also states that lockout/tagout programs promote safe and efficient operations and are an important element of conduct of operations programs.
- DOE-STD-1073-93-Pt.1 and -Pt.2, *Guide for Operational Configuration Management Programs, Including the Adjunct Programs of Design Reconstitution and Material Condition and Aging Management*, provides guidelines and good practices for an operational configuration management program including change control and document control.
- DOE/EH-0502, Safety Notice 95-02, "Independent Verification and Self-Checking," describes a technique that requires workers to (1) stop before performing the task to eliminate distractions and identify the correct component; (2) think about the task, expected response, and actions required if that response does not occur; (3) re-confirm the correct component and perform the function; and (4) review by comparing the actual versus the expected response. Human actions can be considered a barrier to provide controls over hazards associated with a job.
- DOE/EH-0540, Safety Notice No. 96-05, "Lockout/Tagout Programs," summarizes lockout/tagout events at DOE facilities, provides lessons learned and recommended practices, and identifies lockout/tagout program requirements.
- The *Hazard and Barrier Analysis Guide*, developed by OEAF, discusses barriers that provide controls over hazards associated with a job. Barriers may be physical barriers, procedural or administrative barriers, or human action. The reliability of barriers is important in preventing undesirable events such as shocks. The reliability of a barrier is determined by its ability to resist failure. Barriers can be imposed in parallel to provide defense-in-depth and to increase the margin of safety. The *Hazard and Barrier Analysis Guide* provides a detailed analysis for selecting optimum barriers, including a matrix that displays the effectiveness of different barriers in protecting against some common hazards.

A copy of the *Hazard and Barrier Analysis Guide* is available from the ES&H Information Center, (800) 473-4375, or by writing to U.S. Department of Energy, ES&H Information Center, EH-72, 19901 Germantown Road, Germantown, MD 20874. It is also available on the Internet at URL <http://tis.eh.doe.gov:80/web/oeaf/tools/hazbar.pdf>. Safety Notices 95-02 and 96-05 can be

obtained by contacting the ES&H Information Center, (800) 473-4375, or by writing to U.S. Department of Energy, ES&H Information Center, EH-72, 19901 Germantown Road, Germantown, MD 20874. Safety Notices are also available on the OEAF Home Page at URL [http://tis.eh.doe.gov:80/web/oeaf/lessons\\_learned/ons/ons.html](http://tis.eh.doe.gov:80/web/oeaf/lessons_learned/ons/ons.html).

**KEYWORDS:** electrical, work control, injury

**FUNCTIONAL AREAS:** Industrial Safety, Configuration Management, Hazards Analysis, Work Control

## 1998 OEWS READER SURVEY

Following is the 1998 OEWS Reader Survey. The responses to the previous surveys were extremely valuable in helping us understand the needs of our customers and chart the course for the OEWS and other OEAF products. We again request your participation to help us learn more about our readership and what you think is valuable. We firmly believe that understanding your needs and perceptions is crucial to ensuring that the OEWS and other OEAF products are useful, quality products that have real benefits to you and the DOE.

Please return the completed electronic survey by filling in the information and pressing the submit button at the bottom. If you cannot submit the survey electronically please return hard copies to:

Mr. I-Ling Chow, U.S. DOE  
c/o Research Planning, Inc.  
20251 Century Boulevard  
Germantown, MD 20874  
Phone: (301) 540-2396 Fax: (301) 540-2499  
Internet: ccrow@rpihq.com

OEAF plans to provide information on the results of the survey in a future OEWS. Thank you in advance for your participation.

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1. What is your job title?

- ☐ Facility Manager
- ☐ Report Originator
- ☐ Facility Representative
- ☐ Program Manager
- ☐ Other Manager
- ☐ Engineer/Analyst
- ☐ Supervisor
- ☐ Instructor
- ☐ Technician
- ☐ Other/please enter your title\_\_\_\_\_

2. In which department do you usually work?

- ☐ Criticality Safety
- ☐ Facility Operations
- ☐ Industrial Hygiene
- ☐ Maintenance
- ☐ Radiation Protection/Health Physics
- ☐ Industrial Safety
- ☐ Nuclear Safety
- ☐ Operating Experience Analysis/Lessons Learned
- ☐ Training
- ☐ Quality
- ☐ Security
- ☐ Engineering/Technical Support
- ☐ Other/please specify\_\_\_\_\_

3. How long have you been in your current position?

\_\_\_\_\_

4. How many total years of experience do you have?

## 1998 OEWS READER SURVEY

5. Who is your employer?

- ☐ DOE
- ☐ Department of Transportation (DOT)
- ☐ Operating Contractor for DOE
- ☐ Other Contractor to DOE
- ☐ Subcontractor to an Operating Contractor
- ☐ Nuclear Regulatory Commission (NRC)
- ☐ Environmental Protection Agency (EPA)
- ☐ Occupational Safety and Health Administration (OSHA)
- ☐ Other Federal Government
- ☐ State Regulatory Agency
- ☐ Commercial Nuclear Utility
- ☐ University
- ☐ Medical Facility
- ☐ Other (please enter your organization)\_\_\_\_\_

6. Does your facility or organization (e.g., company, office, site) have a lessons-learned program?

- ☐ Yes
- ☐ No (Proceed to Question 11)

7. If yes, would you describe the program as formal (i.e., written guidance or procedures)?

- ☐ Yes
- ☐ No (Proceed to Question 11)

8. If yes, does the program include identification of specific corrective actions from reviewing operating experience/lessons-learned documents that may be applied to your facility?

- ☐ Yes
- ☐ No (Proceed to Question 11)

9. If yes, does the program include tracking the identified corrective actions?

- ☐ Yes
- ☐ No (Proceed to Question 11)

10. If yes, does the program track the effectiveness of the corrective actions?

- ☐ Yes
- ☐ No

11. Does your facility have a lessons-learned coordinator or point-of-contact?

- ☐ Yes
- ☐ No

## 1998 OEWS READER SURVEY

Name: \_\_\_\_\_

Facility: \_\_\_\_\_

Dept./Organization: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Email Address: \_\_\_\_\_

12. Do you have formal distribution of the OEWS within your organization?

- ☐ Yes
- ☐ No

13. What is the physical appearance of the OEWS when it arrives?

- ☐ Acceptable
- ☐ Unacceptable

14. Do you share your copy of the OEWS?

- ☐ Yes, with \_\_\_\_ people
- ☐ No

15. How often do you read the OEWS?

- ☐ Every week
- ☐ Every other week
- ☐ Once a month
- ☐ Less frequently than once a month

16. How do you use the OEWS in your job (check all that apply)?

- ☐ Corrective Actions Program
- ☐ Industrial Safety Program
- ☐ Job Planning
- ☐ Lessons Learned Program
- ☐ Nuclear Safety Program
- ☐ ORPS Preparation
- ☐ Training Program
- ☐ Other/please specify (e.g., teaching materials) \_\_\_\_\_

17. How useful in your job are the articles in the OEWS?

- ☐ Very useful (e.g., at least one article in every issue is pertinent to your job)
- ☐ Somewhat useful (e.g., one article in every 4/5 issues is pertinent to your job)
- ☐ Rarely useful (e.g., only one article used each quarter)
- ☐ Never useful

18. Do you believe the OEWS has contributed to improved safety performance at your site?

- ☐ Yes
- ☐ No

## 1998 OEWS READER SURVEY

19. Do the articles in the OEWS contain sufficient information?

- ☐ Yes  
☐ No (If no, what information do you feel should be included?)

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20. On average, the length of the OEWS articles is:

- ☐ Too long (Many articles contain extraneous information and take too long to read.)  
☐ Acceptable length (Most articles contain only pertinent information.)  
☐ Too short (Most articles are missing pertinent information.)

21. How easy to understand are the articles in the OEWS?

- ☐ Too difficult (The writing is complex; many technical terms are not adequately defined.)  
☐ Acceptable (The writing is clear; technical terms are adequately defined.)  
☐ Too tedious (The writing is simplistic; too many common technical terms are defined.)

22. How useful are the "DOE Guidance" sections of OEWS articles (usually the last paragraph or two of the articles)?

- ☐ Very useful  
☐ Somewhat useful  
☐ Rarely useful  
☐ Never useful

23. How useful are the suggested actions given in the OEWS articles?

- ☐ Very useful  
☐ Somewhat useful  
☐ Rarely useful  
☐ Never useful

24. How useful are the following parts of OEWS articles when they are included?  
 ("0" = Not Useful, "5" = Very Useful)

Description of event and significance (first paragraph)	0	1	2	3	4	5
Details of event (second paragraph)	0	1	2	3	4	5
Investigation and causes of event	0	1	2	3	4	5
Corrective actions	0	1	2	3	4	5
Similar events	0	1	2	3	4	5
Regulatory guidance	0	1	2	3	4	5
Key words	0	1	2	3	4	5
Functional areas	0	1	2	3	4	5

## 1998 OEWS READER SURVEY

Trend of similar occurrences (graph)	0	1	2	3	4	5	
Causes of similar occurrences (graph)		0	1	2	3	4	5
Distribution of similar occurrences by field office (graph)	0	1	2	3	4	5	
Photograph of occurrence scene	0	1	2	3	4	5	
Floor plan of occurrence scene		0	1	2	3	4	5
Drawing or photograph of equipment	0	1	2	3	4	5	

25. Some of the information presented in an OEWS article is based on the investigation and critique of the occurrence. Because new information may be uncovered during the investigation, there is a trade-off between the timeliness of an article and attributes such as completeness and depth of analysis. For each of the pairs of attributes below, circle the one that is most important to you in an OEWS article.

**Timeliness**

**Completeness**

**Timeliness**

**Depth of Analysis**

26. How frequently should DOE publish the OEWS?

- ☐ Once a week
- ☐ Once every two weeks
- ☐ Once per month
- ☐ Other/Please specify \_\_\_\_\_

27. Since you have been receiving the OEWS, has the overall quality/usefulness:

- ☐ Increased
- ☐ Decreased
- ☐ No change
- ☐ Don't know

28. Over the last year, has the overall quality/usefulness:

- ☐ Increased
- ☐ Decreased
- ☐ No change
- ☐ Don't know

29. Which of the following subjects do you think should be covered in the OEWS?

("0" = Never include, "3" = OEWS covers the subject sufficiently, "5" = Include more frequently)

<b>Criticality Safety</b>	0	1	2	3	4	5
<b>Industrial Safety</b>	0	1	2	3	4	5
<b>Transportation</b>	0	1	2	3	4	5

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<b>Radiation Protection</b>	0	1	2	3	4	5
<hr/>						
<b>Work Control</b>	0	1	2	3	4	5
<hr/>						
<b>Conduct of Work</b>	0	1	2	3	4	5
<hr/>						
<b>Conduct of Operations</b>		0	1	2	3	4 5
<hr/>						
<b>Training</b>	0	1	2	3	4	5
<hr/>						
<b>Engineering &amp; Design</b>	0	1	2	3	4	5
<hr/>						
<b>Lessons Learned from Commercial Nuclear Utilities</b>		0	1	2	3	4 5
<hr/>						
<b>Operating Experience Analysis</b>		0	1	2	3	4 5
<hr/>						
<b>Nuclear Safety</b>	0	1	2	3	4	5
<hr/>						
<b>Good Practices</b>		0	1	2	3	4 5
<hr/>						
<b>Cost-Beneficial Activities</b>	0	1	2	3	4	5
<hr/>						
<b>Emergency Planning/ Environmental Protection</b>	0	1	2	3	4	5
<hr/>						
<b>Other/please specify</b> _____						
<hr/>						

30. How would you improve the OEWS (what are important attributes the OEWS should have but are currently lacking/inadequate)?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

31. Should DOE periodically publish an index of OEWS article titles to help find past articles of interest to readers?

- ☐ Yes
- ☐ No (Proceed to Question 33)
- ☐ Not sure (Proceed to Question 33)

32. If yes, which index subjects would be most useful (check all that apply)?

- ☐ OEWS article title

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- ☐ Facility where event occurred
- ☐ Subject of article (key words)
- ☐ All of the above

33. What other Operating Experience or lessons learned products would be useful to your facility?

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34. In your opinion, is there a need for another Operating Experience product which is published:

- ☐ Monthly
- ☐ Quarterly
- ☐ Semi-annually
- ☐ Annually
- ☐ No need

35. Do you have any suggestions for content, format, medium, length, distribution, focus, etc.?

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36. In your opinion, would a periodic publication highlighting outstanding programs at DOE facilities, sites, or organizations be useful?

- ☐ Yes
- ☐ No
- ☐ Not sure

37. Please indicate any specific programs at your facility that you consider to be outstanding and, as such, would be candidates for such a publication.

**Facility:** \_\_\_\_\_

**Program:** \_\_\_\_\_

**Contact Name:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Email Address:** \_\_\_\_\_

38. Are you aware that you can write an article and work with the OEAF engineers to get it published in the OEWS?

- ☐ Yes
- ☐ No

39. Are you able to access the OEWS electronically on the network or through Internet access?

- ☐ Yes

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☐ No

40. Are you aware that you can perform electronic word searches of all OE Weekly Summaries from the Weekly Summary web page?

☐ Yes

☐ No

If yes, how often do you use this feature?

☐ Once a week

☐ Once per month

☐ Never

☐ Other/please

specify \_\_\_\_\_

41. How useful in your job are the Safety Notices published by the Office of Nuclear Safety?

☐ Very useful

☐ Somewhat useful

☐ Rarely useful

☐ Never useful

☐ Not aware of Safety Notices (Proceed to Question 45)

42. Do the Safety Notices contain sufficient information?

☐ Yes

☐ No

If no, what information do you feel should be included?

\_\_\_\_\_

43. On average, the length of the Safety Notices is:

☐ Too long (Most notices contain extraneous information and take too long to read.)

☐ Acceptable (Most notices contain only pertinent information.)

☐ Too short (Most notices are missing pertinent information.)

44. How easy to understand are the Safety Notices?

☐ Too difficult (The writing is complex; many technical terms are not adequately defined.)

☐ Acceptable (The writing is clear; technical terms are adequately defined.)

☐ Too tedious (The writing is simplistic; too many common technical terms are defined.)

45. What other subjects for Safety or Technical Notices would be useful to your facility?

\_\_\_\_\_

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46. Would you like to receive the OEWS electronically (usually available the day it goes to print)?

- ☐ Yes  
☐ No

If yes, please provide the following information:

<b>Name</b>	
<b>Title</b>	
<b>Company</b>	
<b>Street Address</b>	
<b>City, State, Zip</b>	
<b>Phone Number</b>	
<b>Email Address</b>	